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2021: The year in review



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Just a few weeks after the introduction of highly effective vaccines, the calendar year 2021 dawned with the promise of controlling the COVID-19 pandemic. As is often the case in medicine, diseases and patients do not always follow the script. The interaction of scientific advances, humanity, and a virus bent on survival led to another year well outside the norm. If there is a silver lining to this pandemic, it has been realized in the hitherto unprecedented speed that led to the development of vaccines, mAbs, and oral medications aimed at controlling the virus. Another silver lining lies in the opening of whole new fields of research in immunology in general and the interface of the immune system with viral infections in particular. Although the studies in the first year of COVID-19 focused on stratifying severity and identifying helpful therapeutics, the second year

(from an immunologic point of view) saw more of a focus on cytokine storms, multiorgan dysfunction, the presence of autoantibodies in patients who were asymptomatic until infected, and the *de novo* development of autoantibodies, including anti-type 1 interferon (and one assumes other cytokines) autoantibodies.

Although the scientific and medical worlds were focused on the virus, the indolent chronic diseases and social disparities continued unabated and perhaps worsened. Our mission at the *Journal of Allergy and Clinical Immunology* is to give equitable weight to all of these issues. This is reflected in the choice of themes, as well as in the selection of articles. We believe that our readers will readily recognize that we have covered basic, translational, clinical, and social aspects of our specialty in addition to COVID-19. Our themes for this year were as follows: food allergy, newborn screening for severe combined immunodeficiency, the genetics of asthma, anaphylaxis, innate immunity,

TABLE I. Top downloaded articles published in the *Journal of Allergy and Clinical Immunology* in 2021

Article title	Authors	DOI	Cover date	No. of downloads
Inhaled corticosteroids downregulate the SARS-CoV-2 receptor ACE2 in COPD through suppression of type I interferon	Finney LJ, Glanville N, Farne H, Aniscento J, Fenwick P, Kemp S, et al	10.1016/j.jaci.2020.09.034	February 2021	8614
COVID-19 in patients with primary and secondary immunodeficiency: the United Kingdom experience	Shields AM, Burns SO, Savic S, Richter AG, UK PIN COVID-19 Consortium	10.1016/j.jaci.2020.12.620	March 2021	5553
Immunologic resilience and COVID-19 survival advantage	Lee G, Restrepo M, Harper N, Manoharan M, Smith A, Meunier J, et al	10.1016/j.jaci.2021.08.021	November 2021	4399
New clinical diagnostic criteria for allergic bronchopulmonary aspergillosis/mycosis and its validation	Asano K, Hebisawa A, Ishiguro T, Takayanagi N, Nakamura Y, Suzuki J, et al	10.1016/j.jaci.2020.08.029	April 2021	4274
Biomarkers in atopic dermatitis—A review on behalf of the International Eczema Council	Renert-Yuval Y, Thyssen J, Bissonnette R, Bieber T, Kabashima K, Hijnen D, et al	10.1016/j.jaci.2021.01.013	April 2021	3788
Coronavirus disease 2019 in patients with inborn errors of immunity: an international study	Meyts I, Bucciol G, Quinti I, Neven B, Fischer A, Seoane E, et al	10.1016/j.jaci.2020.09.010	February 2021	3486
Systemic and mucosal antibody responses specific to SARS-CoV-2 during mild versus severe COVID-19	Cervia C, Nilsson J, Zurbuchen Y, Valaperti A, Schreiner J, Wolfensberger A, et al	10.1016/j.jaci.2020.10.040	February 2021	3070
Animal models of psoriasis—Highlights and drawbacks	Schön M, Manzke V, Erpenbeck L,	10.1016/j.jaci.2020.04.034	February 2021	2879
Regulating T-cell differentiation through the polyamine spermidine	Carriche G, Almeida L, Stüve P, Velasquez L, Dhillon-LaBrooy A, Roy U, et al	10.1016/j.jaci.2020.04.037	January 2021	2721
Association of frequent moisturizer use in early infancy with the development of food allergy	Perkin M, Logan K, Marrs T, Radulovic S, Craven J, Boyle R, et al	10.1016/j.jaci.2020.10.044	March 2021	2721

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TABLE II. Top cited articles published in the *Journal of Allergy and Clinical Immunology* in 2021

Article title	Authors	DOI	Cover date	No. of citations
Coronavirus disease 2019 in patients with inborn errors of immunity: an international study	Meyts I, Bucciol G, Quinti I, Neven B, Fischer A, Seoane E, et al	10.1016/j.jaci.2020.09.010	February 2021	88
Systemic and mucosal antibody responses specific to SARS-CoV-2 during mild versus severe COVID-19	Cervia C, Nilsson J, Zurbuchen Y, Valaperti A, Schreiner J, Wolfensberger A, et al	10.1016/j.jaci.2020.10.040	February 2021	82
Factors associated with adverse COVID-19 outcomes in patients with psoriasis—Insights from a global registry-based study	Mahil SK, Dand N, Mason KJ, Yiu ZZN, Tsakok T, Meynell F, et al	10.1016/j.jaci.2020.10.007	January 2021	51
Heritable risk for severe anaphylaxis associated with increased α -tryptase-encoding germline copy number at TPSAB1	Lyons JJ, Chovanec J, O'Connell MP, Liu Y, Šelb J, Zanotti R, et al	10.1016/j.jaci.2020.06.035	February 2021	48
IL-6 serum levels predict severity and response to tocilizumab in COVID-19: an observational study	Galván-Román JM, Rodríguez-García SC, Roy-Vallejo E, Marcos-Jiménez A, Sánchez-Alonso S, Fernández-Díaz C, et al	10.1016/j.jaci.2020.09.018	January 2021	45
Inhaled corticosteroids downregulate the SARS-CoV-2 receptor ACE2 in COPD through suppression of type I interferon	Finney LJ, Glanville N, Farne H, Aniscenko J, Fenwick P, Kemp SV, et al	10.1016/j.jaci.2020.09.034	February 2021	45
Characterization of the cytokine storm reflects hyperinflammatory endothelial dysfunction in COVID-19	Sims JT, Krishnan V, Chang C-Y, Engle SM, Casalini G, Rodgers GH, et al	10.1016/j.jaci.2020.08.031	January 2021	43
COVID-19 in patients with primary and secondary immunodeficiency: the United Kingdom experience	Shields AM, Burns SO, Savic S, Richter AG, Anantharachagan A, Arumugakani G, et al	10.1016/j.jaci.2020.12.620	March 2021	40
Anakinra combined with methylprednisolone in patients with severe COVID-19 pneumonia and hyperinflammation: an observational cohort study	Bozzi G, Mangioni D, Minoia F, Aliberti S, Grasselli G, Barbeta L, et al	10.1016/j.jaci.2020.11.006	February 2021	34
Immunogenicity of Pfizer-BioNTech COVID-19 vaccine in patients with inborn errors of immunity	Hagin D, Freund T, Navon M, Halperin T, Adir D, Marom R, et al	10.1016/j.jaci.2021.05.029	September 2021	27

TABLE III. Top 10 Editors' Choice selections published in the *Journal of Allergy and Clinical Immunology* in 2021

Article title	Authors	DOI	Cover date
Heritable risk for severe anaphylaxis associated with increased α -tryptase-encoding germline copy number at TPSAB1	Lyons JJ, Chovanec J, O'Connell MP, Liu Y, Šelb J, Zanotti R, et al	10.1016/j.jaci.2020.06.035	February 2021
Ara h 2-specific IgE is superior to whole peanut extract-based serology or skin prick test for diagnosis of peanut allergy in infancy	Keet C, Plesa M, Szelag D, Shreffler W, Wood R, Dunlop J, et al	10.1016/j.jaci.2020.11.034	March 2021
Association of frequent moisturizer use in early infancy with the development of food allergy	Perkin MR, Logan K, Marrs T, Radulovic S, Craven J, Boyle RJ, et al	10.1016/j.jaci.2020.10.044	March 2021
Mechanisms and biomarkers of inflammatory endotypes in chronic rhinosinusitis without nasal polyps	Klingler AI, Stevens WW, Tan BK, Peters AT, Poposki JA, Grammar LC, et al	10.1016/j.jaci.2020.11.037	April 2021
Trained immunity and tolerance in innate lymphoid cells, monocytes, and dendritic cells during allergen-specific immunotherapy	Eljaszewicz A, Rucht F, Radzikowska U, Globinska A, Boonpiyathad T, Gschwend A, et al	10.1016/j.jaci.2020.08.042	May 2021
Skin-resident natural killer T cells participate in cutaneous allergic inflammation in atopic dermatitis	Sun ZW, Kim JH, Kim SH, Kim HR, Zhang KL, Pan Y, et al	10.1016/j.jaci.2020.11.049	May 2021
Elevated NK-cell transcriptional signature and dysbalance of resting and activated NK cells in atopic dermatitis	Möbus L, Rodriguez E, Harder I, Schwarz A, Wehkamp U, Stölzl D, et al	10.1016/j.jaci.2020.11.022	May 2021
Multidimensional study of the oral microbiome, metabolite, and immunologic environment in peanut allergy	Ho H, Chun Y, Jeong S, Jumreornvong O, Sicherer SH, Bunyavanich S	10.1016/j.jaci.2021.03.028	August 2021
Endotype of allergic asthma with airway obstruction in urban children	Altman MC, Calatroni A, Ramratnam S, Jackson DJ, Presnell S, Rosasco MG, et al	10.1016/j.jaci.2021.02.040	November 2021
Genetic ancestry differences in pediatric asthma readmission are mediated by socioenvironmental factors	Mersha TB, Qin K, Beck AF, Ding L, Huang B, Kahn RS, et al	10.1016/j.jaci.2021.05.046	November 2021

inflammasomes, the exposome, aspirin-exacerbated respiratory diseases, the immunology of pregnancy, Janus kinase inhibitors, social disparities in allergy/immunology, and global issues in allergy/immunology. As is readily apparent from these themes, we have strived to cover most topics with immediate relevance to our readers and the members of the American Academy of Allergy, Asthma & Immunology. This is not an easy task given the breadth of our specialty.

One metric that we have used in selecting themes and articles is the interest of our readers as reflected in the number of downloads for each article. [Table I](#) indicates the top 10 most downloaded articles in 2021.

Another metric to measure our impact is the number of citations received by each article, which indicates the interest of the scientific community at large. The top 10 most cited articles are listed in [Table II](#).

It is interesting to note that 5 of the top 10 downloaded articles are articles devoted to COVID-19. On the other hand, 9 of the top 10 cited articles are articles about COVID. Three of the articles appear in both lists.¹⁻³

The editors believe that sometimes highly impactful articles may be overlooked or their potential impact may not be immediately apparent. Hence, we have the Editors' Choice in each monthly issue. The editors reviewed the articles that were selected for Editors' Choice in 2021 and selected the 10 articles that they thought have or will have significant impact on our understanding of mechanisms or on our daily practice. These are shown in [Table III](#).

The editors would like to extend heartfelt thanks and gratitude to our reviewers, who once again went above and beyond the call of duty to ensure fair and rapid reviews.

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